

VU Research Portal

Standardization of pathways to adulthood? An analysis of Dutch cohorts born between 1850 and 1900

Bras, H.; Liefbroer, A.C.; Elzinga, C.H.

published in

Demography

2010

DOI (link to publisher)

[10.1007/BF03213737](https://doi.org/10.1007/BF03213737)

document version

Publisher's PDF, also known as Version of record

[Link to publication in VU Research Portal](#)

citation for published version (APA)

Bras, H., Liefbroer, A. C., & Elzinga, C. H. (2010). Standardization of pathways to adulthood? An analysis of Dutch cohorts born between 1850 and 1900. *Demography*, 47(4), 1013-1034.
<https://doi.org/10.1007/BF03213737>

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal ?

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

E-mail address:

vuresearchportal.ub@vu.nl

STANDARDIZATION OF PATHWAYS TO ADULTHOOD? AN ANALYSIS OF DUTCH COHORTS BORN BETWEEN 1850 AND 1900*

HILDE BRAS, AART C. LIEFBROER, AND CEES H. ELZINGA

This article examines pathways to adulthood among Dutch cohorts born in the second half of the nineteenth century. Although largely overlooked by previous studies, theory suggests that life courses of young adults born during this period were already influenced by a process of standardization, in the sense that their life courses became more similar over time. Using data from a Dutch registry-based sample, we examine household trajectories: that is, sequences of living arrangements of young adults aged 15–40. Our study shows that for successive cohorts, household trajectories became more similar. We identified six types of trajectories: early death, life-cycle service, early family formation, late family formation, singlehood, and childless but with partner. Over time, early family formation gradually became the “standard” trajectory to adulthood. However, late family formation and singlehood, common pathways within the preindustrial western European marriage pattern, remained widespread among cohorts born in the late nineteenth century. Laboring class youths, farmers’ daughters, young people of mixed religious background, and urban-born youngsters were the nineteenth century forerunners of a standard pathway to adulthood.

During the twentieth century, the life courses of young adults in Western societies have undergone fundamental change (Mayer 2004). Among cohorts born in the first half of the twentieth century, events that mark the transition to adulthood—leaving home, marriage, and entry into parenthood—occurred at increasingly earlier ages; comparatively, among cohorts born in the second half of that century, an opposite trend could be observed. In addition, among cohorts born in the first half of the twentieth century, a trend toward standardization of the life course could be witnessed, in the sense that the life courses of young adults became increasingly similar to one another; a process of destandardization became apparent among cohorts born in the second half of the twentieth century. An impressive body of both theoretical and empirical knowledge about these processes has accumulated (Hogan 1978, 1981; Modell 1989; Modell, Furstenberg, and Hershberg 1976; Settersten, Furstenberg, and Rumbaut 2005; Stanger-Ross, Collins, and Stern 2005; Stevens 1990; Uhlenberg 1969, 1974).

Far less is known about the trends in the pathways to adulthood among cohorts born in the second half of the nineteenth century. This is unfortunate because it would be worthwhile to know whether standardization of the life course was already occurring during this period, as has sometimes been suggested (Hareven 1986; Kohli 1986), or was something that started only among those cohorts born in the early twentieth century. In addition, it would be interesting to know which social groups were the forerunners in the standardization process.

Our knowledge about the trends in the pathways to adulthood among cohorts born in the second half of the nineteenth century in Europe and North America is limited for two

*Hilde Bras, Department of Social Research Methodology, VU University Amsterdam, De Boelelaan 1081, 1081 HV Amsterdam, the Netherlands; e-mail: haj.bras@fsw.vu.nl. Aart C. Liefbroer, Netherlands Interdisciplinary Demographic Institute, The Hague, and Department of Social Research Methodology, VU University Amsterdam. Cees H. Elzinga, Department of Social Research Methodology, VU University Amsterdam. The Netherlands Organization for Scientific Research provided financial support for the first author in the form of a VENI Innovative Research Incentives Grant (Grant No. 275-53-001). We thank the anonymous reviewers for their constructive remarks and comments.

reasons. First, most studies have focused on changes in single markers of the transition to adulthood. Yet, societal changes affect life courses as a whole, influencing not just the timing of separate transitions but their sequencing and spacing as well. The notion of “social pathways” (Elder, Johnson, and Crosnoe 2003; Macmillan 2005) captures this idea of life course dynamics that take place over an extended period of time. Although social pathways have been a central element of the life course paradigm since its inception (Elder 1978, 1985), life course scholars have only recently begun to empirically model them in technically more advanced ways (e.g., Arosio 2004; Baizán, Michelin, and Billari 2002; Elzinga and Liefbroer 2007; Hynes and Clarkberg 2005; Jackson and Berkowitz 2005; Martin, Schoon, and Ross 2008; Pollock 2007). Second, most studies that focus on the transition to adulthood during the latter part of the nineteenth and the early part of the twentieth century have relied on cross-sectional census data. Although imaginative use can be made of census data (Hogan 1978; Marini 1984; Rindfuss, Swicegood, and Rosenfeld 1987; Uhlenberg 1969, 1974), such data cannot reveal the sequence of steps that individuals take during their life course (Mouw 2005).

In this article, we apply a pathway approach to examine the standardization of the transition to adulthood among Dutch cohorts born between 1850 and 1900. Our study extends earlier research in that we examine the transition of adulthood of a European population on the basis of longitudinal historical data, allowing us to go further back in time than previous research has and to study patterns of behavior across a large segment of the life course. More specifically, we examine household trajectories: that is, sequences of living arrangements of young adults aged 15–40. In addition, because of the richness of the individual-level data, we are also able to examine social differences in the patterns of entry into adulthood among these cohorts.

In the next section, we develop hypotheses on several aspects of the standardization of the life course. We subsequently test these by using data from the Historical Sample of the Netherlands (HSN; Mandemakers 2006), a sample based on registry data that include individual-level, prospective longitudinal information. We chart the extent to which standardization actually took place, empirically distinguish between different pathways to adulthood, and examine whether there was indeed a trend toward greater dominance of a standard pathway. Finally, we use logistic regression analysis to examine the determinants of different pathways to adulthood. The main results and their implications are discussed in the concluding section.

HYPOTHESES ON THE STANDARDIZATION OF THE TRANSITION TO ADULTHOOD

Social Change and the Transition to Adulthood, 1850–1940

The transition to adulthood, today as well as in the past, consists of a series of passages, including leaving home, marriage, and first parenthood. Its specific form, duration, and content, however, differed between societies with diverse demographic regimes, family systems, and cultural characteristics. (For a recent overview of historical differences in leaving home patterns, see Van Poppel, Oris, and Lee [2004].) A number of authors have tried to link national and regional patterns in the transition to adulthood in Western societies to historical patterns of family formation and family relations. Hajnal (1965) discerned an east-west divide in marriage patterns running from St. Petersburg to Trieste, with neolocal families, late ages at first marriage, and a high percentage of never-married to the west of this line, and early and universal marriage to the east of it. Moreover, Hajnal argued that in western Europe, servanthood was a quintessential stage in the life course of youngsters involving the departure from the parental home at a relatively early age (Hajnal 1983). Reher (1998) showed additional important north-south European differences regarding life course patterns depending on the nature of family ties, thus separating contemporary northwestern Europe

(as well as North America) from southern and Mediterranean Europe. The north of Europe was characterized by weak family ties and an emphasis on individual independence. In the south of Europe, strong family ties existed, and group values and kin solidarity dominated. Whereas the transition to adulthood in the north was characterized by an early departure of children into domestic service, servanthood as a phase was uncommon in the south, and youngsters left the parental home only upon marriage and the creation of their own families. Thus, considerable regional differences marked the transition to adulthood in Europe and in North America (Modell 1989; Modell et al. 1976; Van Poppel et al. 2004; Wall 1989, 1995).

Apart from global differences, the transition to adulthood was subject to historical change (Brinkgreve and De Regt 1991; Gillis 1974; Hanawalt 1992). We briefly sketch the most important changes pertaining to the transition to adulthood during the period 1850–1940, thereby focusing on northwestern Europe, and on the Netherlands in particular. In preindustrial northwestern European society, the passage to adulthood was a prolonged, barely age-graded phase with its own social status. Situated between dependence and independence, youngsters formed a separate group with their own rituals, festivities, and organizations. Biological maturation, religious initiation, and the end of primary education marked the onset of the transition to adulthood. Marriage and the formation of a household were regarded as its completion (Gillis 1974; Hanawalt 1992). This protracted phase was closely related to the dominant pattern of marriage and procreation. In the Netherlands, as elsewhere in western Europe, as of 1600, the western European marriage pattern prevailed, which was characterized by a high age at first marriage (average age at first marriage was 24 for women and 26 for men) and a relatively large share of never-married (Hajnal 1965). Marriage was possible only if one was able to ensure a living standard that was fitting to one's own social class. Related to this marriage pattern was the existence of life-cycle service. Substantial numbers of young people spent time in the households of others as an apprentice, a maid, a farm hand, or a servant. Life-cycle service offered youngsters an opportunity to gain experience while saving money for a dowry or a starting capital that would allow them to marry. The western European marriage pattern, however, started to erode under the influence of industrialization.

In the Netherlands, industrialization took off around 1860. It was characterized by an intensification of the tertiary sector in the urban heartland of Holland and by a growth of the secondary sector, particularly the production of metal and textiles in the eastern region of Twente and the manufacture of ceramics in the southern city of Maastricht (Van Zanden and Van Riel 2004; Wintle 2000). A range of new occupations emerged: for young men, in the harbors, shipbuilding, factories, and housing construction, and for women, particularly in the urban domestic service sector. Only after the turn of the century did additional female employment opportunities open up: for instance, in department stores, teaching, and communications.

Industrialization in the Netherlands was not accompanied by an increase in state organization and regulation. Labor legislation was limited to curbing child labor (in 1874 and 1889) and the regulation of the labor of married women. Much of the work that was done by youngsters—for example, in the domestic service sector—was excluded from these decrees. Neither did the educational system impose important regulations on the transition to young adulthood. In 1905, compulsory education until the age of 12 was introduced. Only in 1951 was the compulsory school age raised by two years (Mandemakers 1996). The welfare state did not develop very fast, either. Legislation concerning old-age pensions became effective in 1919, and bills regulating health care in the context of employment were implemented only after World War II (Wintle 2000). And not until 1963, with the introduction of the General Social Security Law, did poor relief become a task of the state (Van der Valk 1986).

Economic transformation and the institutionalization of the labor market, however, did affect young adult lives. Because of the rise of real wages, it became easier to be

economically independent at a younger age. As a result, the age at marriage started to decrease gradually in all social classes during the last decades of the nineteenth century (Van Poppel 1992), and the prevalence of marriage increased. Furthermore, improvements in economic conditions, health care, personal hygiene, and infant care led to a drastic decrease of mortality as from 1875, including a reduction of mortality among youngsters (Van Poppel 1999).

Technological modernization and the development of infrastructure and transport facilities (train, tram, and bicycle) also influenced young adulthood as of the 1870s (Knippenberg and De Pater 1988; Van der Woud 2007). Extended transport facilities enabled youngsters to coreside with their parents and travel to work, thus instigating a separation of household and work, which in turn led to decreasing numbers of youngsters coresiding with non-kin. A decline in the prevalence of working and living in as a boarder, a lodger, an apprentice, or a (domestic) servant was further reinforced by increased prosperity, enlarged employment opportunities for women, and an increased need for privacy and leisure time. We expect that as a consequence of these developments, household trajectories of Dutch youngsters became increasingly standardized. In the next section, we formulate a number of specific hypotheses on this standardization process.

Standardization of Household Trajectories

Although the concept of standardization is central to discussions about developments in the life course during the last century, it is hard to define exactly what it entails. A useful starting point could be the definition that Brückner and Mayer (2005) offered for the opposite process: that of “destandardization.” They defined it as “life states, events and their sequences [that] can become experiences which either characterize an increasingly smaller part of the population or occur at more dispersed ages and with more dispersed durations” (Brückner and Mayer 2005:32). If one applies this type of definition to the process of standardization, at least two important characteristics of standardization can be distinguished (cf. Elzinga and Liefbroer 2007). The first characteristic is that the similarity in life course trajectories has increased. Accordingly, our first hypothesis is as follows:

Hypothesis 1: Across cohorts born in the second half of the nineteenth century, pathways to adulthood became more similar.

The second attribute of standardization is a decrease in the diversity of trajectories and the increased prevalence of one specific type of trajectory, which ultimately is viewed as the standard trajectory. To define which trajectory became the standard one in the course of the late nineteenth and early twentieth century, we refer to Uhlenberg’s (1974) typology of life course trajectories of women aged 15–50. Women who survived until age 15 but who died before their fiftieth birthday pursued the path of *early death*. Women who were not married at age 50 were categorized as *spinsters*. Those who did marry but did not have children at age 50 were regarded as following the *childless* track. Women who married and bore children but whose marriage was interrupted by the untimely death of their partner were considered to have a *broken marriage with children* pathway. A preferred or standard trajectory had early marriage and family formation as its central features. Following Uhlenberg’s typology and empirical results, we expect the following:

Hypothesis 2: Across cohorts born in the second half of the nineteenth century, the domination of a standard pathway, characterized by early marriage and family formation, increased.

What groups were precursors in this standardization process, and what groups lagged behind? First, we expect disparities according to gender. For one thing, patterns of nuptiality were highly gender-specific. In the Netherlands, as of 1909, the occurrence

of marriage among men started to increase, but women's prevalence of marriage lagged behind. In 1930, the proportion of never-married women was still about 5% higher than that of never-married men (Engelen and Kok 2003). Still, gender-specific occupational prospects constituted the most important differential in the passage to adulthood. Employment opportunities for young men were located in the parental home, in factories, or in workshops; often, work could be obtained while the young men lived at home. Women on the other hand, were more dependent on employment opportunities that meant living in with an employer. During the period 1870–1920, on average, almost 40% of all Dutch women worked as a servant before they married (Bras 2004). Although men coresided with non-kin, too, this type of living arrangement was more typical for women. Spells of coresiding with non-kin gave women's life courses a more capricious and disordered character. We therefore expect the following:

Hypothesis 3: Among cohorts born in the second half of the nineteenth century, pathways to adulthood of men were more standardized than the pathways to adulthood of women.

Traditionally, large disparities among social classes existed in patterns of leaving home, coresidence, and marriage. Youngsters of the unskilled laboring classes were more often confronted with a period of life-cycle service than children born in the middle classes or in farm families (Bras 2004). However, changes in labor markets and higher living standards affected the prevalence and age at marriage of particularly youngsters of laboring class background, who profited from increased demand for workers and increased real wages. The marriage behavior of children originating in the higher and middle strata and in the farming class changed much less (Van Poppel 1992). The material prerequisites that were needed to create a household had, because of the rise of living standards, only become higher. Therefore, for the propertied classes, household formation remained difficult (Engelen and Kok 2003; Falkenburg 1905). Although laboring youth more often lived with employers, their increased opportunities to marry, and to do so at younger ages, resulted in a greater degree of standardization of their pathways to adulthood in comparison with youngsters of other social backgrounds. Thus, we expect the following:

Hypothesis 4: Among cohorts born in the second half of the nineteenth century, the pathways to adulthood of unskilled laborers were more standardized than the pathways to adulthood of persons from other social strata.

In the historical debate on the modernization of demographic behavior, religion plays an important role. Certain religious groups displayed modernized demographic behavior relatively early, while other groups lagged behind (Coale and Watkins 1986; Derosas and Van Poppel 2006). In the Netherlands, Catholic priests condemned birth control, and late marriage and celibacy were considered the only means of population control. Among liberal Protestant denominations, on the other hand, the neo-Malthusian alternative was accepted much earlier. Particularly, Remonstrant and Mennonite groups were freethinkers as far as birth control was concerned. Orthodox Protestants, by contrast, had similar strict sexual morals as the Catholics (Engelen and Kok 2003; Van Bavel and Kok 2005). If birth control is morally admitted, the cost of keeping a household is easier to control; therefore, groups that are liberal with respect to birth control can be expected to start a household sooner and more often than groups in which birth control is less well accepted. Therefore, we formulate our fifth hypothesis:

Hypothesis 5: Among cohorts born in the second half of the nineteenth century, the pathways to adulthood of liberal Protestants were more standardized than the pathways to adulthood of persons belonging to other religious denominations.

DATA AND METHODS

Data

We use data from the Historical Sample of the Netherlands (HSN). The HSN contains all information available in Dutch civil and population registers for a 0.5% sample of all Dutch men and women respondents¹ born between 1812 and 1922 (Mandemakers 2006). The most important source is the Dutch population register, which was initiated by Royal Decree in 1850 and was maintained by the separate municipalities. In each municipality, one or more civil servants were charged with keeping the population registers. In it, information is available on date and place of birth, relation to the head of the household, sex, marital status, occupation, and religion for each individual in a household. All changes occurring in the household were mentioned in the register. New household members, arriving after the registration had started, were added to the list of individuals already recorded, and those moving out by death or migration were crossed out with reference to the date of migration and the place of destination or the date of death. Migrated persons were subsequently registered in their new place of residence. This means that families and individuals can, in principle, be tracked on a day-to-day basis for a long period. The decennial censuses were used to update the system.

For this study, we selected respondents who were born between 1850 and 1900, and who survived at least to the age of 15. Given that the population register was initiated in 1850, it was impossible to construct the full household trajectories of respondents born before 1850. In addition, given that information on all persons who live in the same household as the respondent is available until 1940 only and given that we want to study household trajectories for a relatively long period, we decided to exclude all respondents born after 1900, and to focus on the household trajectories of respondents between age 15 and 40. In all, information on household trajectories is available for 4,651 respondents.

The Construction of Household Trajectories

The HSN allows one to establish with whom a respondent lived at any point in time, and thus to classify each respondent according to household type. For each month between the ages of 15 and 40, the respondent is classified as living in one of 11 different household positions (Table 1): First, the respondent can live *alone* (A). Second, the respondent can live *with parents* (P), whether accompanied by siblings and whether together with non-kin, such as coresident personnel. When the respondent is living with a partner but without one or both of the parents, there are two possibilities: when the respondent has no children, the living arrangement is designated as *with spouse, but without children* (S); but if the respondent does have children, the living arrangement is classified as *with spouse and children* (SC). In both cases, it does not matter whether—with the exception of parents—other kin and/or non-kin belong to the household. We classify the living arrangement as *without spouse, but with children* (C) when the respondent lives with one of his or her children but without a partner or parent. When, except for partner and any children, also one or both parents or parents-in-law reside in the household, the living arrangement is classified as *With spouse and parents (in-law)* (SP) or as *with spouse, children, and parents (in-law)* (SCP). Again, it does not matter whether other kin or non-kin are part of the household. When the respondent lives neither alone, nor with parents, children, or partner in the same household, two possibilities remain: the respondent lives with other kin—such as a sibling or an aunt or uncle—and any possible non-kin in a household; or the respondent lives only with non-kin—for example, as a servant or in an institutional household, such as a convent. The first possibility is classified as *with kin other than spouse, parents-in-law, or children* (K),

1. For simplicity, we use the term respondents, though our data are from registers on decedents rather than from actual respondents.

Table 1. Living Arrangements and Their Acronyms

Number	Acronym	Description
1	A	Alone
2	P	With parents
3	S	With spouse but without children
4	SC	With spouse and children
5	C	Without spouse but with children
6	SP	With spouse and parents (in-law)
7	SCP	With spouse, children, and parents (in-law)
8	K	With kin other than spouse, parents (in-law), or children
9	N	With non-kin
10	D	Died
11	U	Unknown

and the second possibility as *with non-kin* (N). In addition to these household positions, two further relevant positions are distinguished. First, it is possible that the respondent died after the age of 15 but before the age of 40. In that case, an extra position, *died* (D), is added for each month after the death of the respondent. Second, a small minority of respondents could not be classified unambiguously in all months between age 15 and 40. Rather than deleting these respondents from the sample, we classify the respective months as *unknown* (U).

Using these positions, for each respondent, a household trajectory can be defined, consisting of sequences of states and associated durations. An example is the sequence P/54 N/58 S/14 SC/174, which summarizes a 300-month trajectory between ages 15 and 40. In this example, the respondent, having reached the age of 15 years, lives for 54 months with parents; spends 58 months within a nonfamily household (probably as a servant or maid); starts living with a partner; and, after 14 months, becomes a parent. Finally, the respondent lives with this partner and at least one child for the remaining 174 months.²

Measures of Standardization

The household trajectories introduced earlier allow for the construction of a number of measures of the level of standardization of the life course. To test the hypotheses, we briefly discuss (1) the ways in which the level of “similarity” is quantified and (2) the cluster procedure used to construct a typology of a small set of relatively homogeneous household trajectories.

Similarity and distance. The best-known technique of comparing the level of similarity of sequences is optimal matching (OM), which was introduced into the social sciences by Abbott and Forrest (1986). In OM, the distance between sequences is quantified as the minimum number of edits required to generate identical sequences. An example of a recent application of OM in demography is found in Aassve, Billari, and Piccarreta (2007); accessible introductions are provided by Abbott and Tsay (2000), Billari (2001), and Brüderl and Scherer (2005). However, the use of OM in the social sciences has been seriously criticized (see, e.g., Elzinga 2003; Settersten and Mayer 1997; and Wu 2000). Therefore, we use a different approach developed by Elzinga (2003, 2005). Here, we

2. Details on the exact procedures to construct these trajectories (including SPSS syntax files) can be obtained from the first author.

explain the basic principles of this approach; for details and algorithms, see Elzinga (2005) and Elzinga, Rahmann, and Wang (2008).

In general, two objects can be said to be similar if they share one or more features; and the more features shared, the more similar they are. On the other hand, if the number of features shared is small compared with the total number of features of either object, similarity is small. If no features are shared, there is no similarity; if all features are shared—that is, if the objects are identical—similarity is maximal. Thus, it seems that quantifying or measuring similarity amounts to establishing the number and weight of the relevant features of both objects and establishing the number and weight of those shared.

In the present context, the objects are *trajectories*, sequences of states that summarize living arrangements. Such sequences consist of subsequences. For example and ignoring durations, the trajectory $x = \text{"P A S"}$ consists of the one-long subsequences "P," "A," and "S," the two-long subsequences "P A," "P S," and "A S," and the three-long subsequence "P A S." Elzinga (2003, 2005) considered these subsequences as the relevant features of the trajectories and represented the trajectories as vectors in a *feature-space*, a space that is spanned by as many dimensions as there are possible subsequences that can be created from the available set of states. For example and for the sake of simplicity, assuming that we use only the states $\{P, A, S\}$, we could fix the order of the set of all subsequences and construct the vector representation $\mathbf{x} = (x_1, x_2, \dots)$ of the trajectory $x = \text{"P A S"}$ as shown here:

		Subsequence																
		P	A	S	PP	PA	PS	AP	AA	AS	SP	SA	SS	PPP	...	PAP	PAS	...
x		1	1	1	0	1	1	0	0	1	0	0	0	0	...	0	1	...

So, whenever a particular subsequence—a particular feature—is possessed by the trajectory, the corresponding coordinate of the representing vector is set to 1; if it is absent, the coordinate is set to 0. Now the number of features possessed by this sequence is easily counted to equal 7. However, this number also equals the product of the representing vector with itself: $\mathbf{x}'\mathbf{x} = \sum x_i \times x_i$. A second example is provided by elaborating on the trajectory $y = \text{"P A P"}$:

		Subsequence																
		P	A	S	PP	PA	PS	AP	AA	AS	SP	SA	SS	PPP	...	PAP	PAS	...
x		1	1	1	0	1	1	0	0	1	0	0	0	0	...	0	1	...
y		1	1	0	1	1	0	1	0	0	0	0	0	0	...	1	0	...

The number of features possessed by the second trajectory, y , amounts to $\mathbf{y}'\mathbf{y} = \sum y_i \times y_i = 6$, and the number of features shared by trajectories x and y —that is, the number of common subsequences—is $\mathbf{x}'\mathbf{y} = \sum x_i \times y_i = 3$. With this vector representation, similarity is quantified simply as the number of features shared relative to the number of features of either sequence, the latter quantity taken as the geometric mean of the separate quantities:

$$0 \leq s(x, y) = \frac{\mathbf{x}'\mathbf{y}}{\sqrt{\mathbf{x}'\mathbf{x} \cdot \mathbf{y}'\mathbf{y}}} \leq 1.$$

Clearly, if the trajectories do not share any features—in other words, if they have no common subsequences—then $\mathbf{x}'\mathbf{y} = 0$ and therefore $s(x, y) = 0$; when x and y are identical, $s(x, y) = 1$. For the two sequences in our example, we find that $s(x, y) = .463$. An approximate interpretation of this number is "percentage of shared features or subsequences;" this interpretation is considered approximate because the denominator of $s(x, y)$ is a geometric mean. Geometrically, $s(x, y)$ denotes the cosine of the angle between the representing vectors: the more similar, the smaller the angle and therefore the bigger the cosine of that angle. Similarly, $\sqrt{\mathbf{x}'\mathbf{x}} = \|\mathbf{x}\|$ denotes the length of the representing vector.

The previous vector representation can be modified to accommodate weighing of the features in various ways. First, repetitions of subsequences can be taken into account by weighing by the number of times that particular subsequences occur within a sequence. For example, for the trajectory $z = \text{"P A P A,"}$ this would generate the representation (partially) shown here:

	Subsequence																
	P	A	S	PP	PA	PS	AP	AA	AS	SP	SA	SS	PPP	...	PAP	PAS	...
z	2	2	0	1	3	0	1	1	0	0	0	0	0	...	1	0	...

In the social sciences, this kind of weighing makes sense because in trajectories of living arrangements or job careers, repetition of states—and, therefore, of subsequences—often occurs and is substantially meaningful.

A second kind of weighing is obtained by including durations as weights. For example, the trajectory $w = \text{"P/4 A/2 S/3"}$ would then give rise to the following representation:

	Subsequence																
	P	A	S	PP	PA	PS	AP	AA	AS	SP	SA	SS	PPP	...	PAP	PAS	...
w	4	2	3	0	6	7	0	0	5	0	0	0	0	...	1	9	...

In the preceding representation, subsequences are weighed according to the total “time spent” in those specific subsequences. In the present article, we combine both ways of weighing.

To examine the standardization of household trajectories, we first calculate the level of similarity between pairs of trajectories. For instance, one can calculate the level of similarity between all pairs of trajectories of females, and do the same for males. Next, one can calculate the average level of similarity of the trajectories of females and compare that with the average level of similarity of the trajectories of males to test whether females’ trajectories are less standardized than males’.

A typology of household trajectories. To construct a typology of household trajectories, we partition the set of all trajectories into subsets such that, on average, similarity within subsets is maximal, whereas similarity between subsets or clusters is minimal. To do this, we define the dissimilarities or distances $D(x,y) = 1 - s(x,y)$.³ Calculating these distances generates a matrix of distances between all pairs of trajectories. We then use K-means clustering (e.g., Duda, Hart, and Stork 2001; Hartigan 1975) to construct a typology or classification of the trajectories. Because the method may converge to a local maximum, we generate 100 sets of random initial configurations and retain the solution with the maximal R^2 ; this ascertains that our solution is probably very close to the global maximum.⁴

Independent Variables

To study trends and social differentials in household trajectories, we include a number of characteristics: birth cohort, sex, social class, and religion. In addition, we include the region of birth and the degree of urbanization of the birthplace of the respondent as control variables because the regional spread of the respondents is unequal over cohorts.

3. When we rescale the vector representations to unit length, $D(x,y)$ corresponds to unit-free, squared Euclidean distances between the rescaled vectors. A formal treatment of the concepts of metric distance and similarity and their interrelations is presented in Chen, Ma, and Zhang (2009).

4. Of course, actually calculating $s(x,y)$ for longer trajectories and an extended alphabet of states would imply constructing and processing vectors of extreme dimensionality. Indeed, such processing is not feasible in practice. Algorithms that efficiently calculate the vector products have been amply described in Elzinga (2003, 2005) and in Elzinga et al. (2008); software that implements these algorithms can be obtained from the authors Elzinga (2008) or from Gabadinho et al. (2008).

Only for the provinces of Zeeland, Friesland, and the city of Rotterdam are data for all cohorts available in the database. We briefly discuss the construction of all variables except gender.

Birth cohort. Respondents were born between 1850 and 1900. To examine whether changes between cohorts took place gradually or more abruptly, we classify all respondents into five 10-year cohorts: 1850–1859, 1860–1869, 1870–1879, 1880–1889, and 1890–1899.

Occupational group of the father. The social class of the respondent is charted on the basis of the occupational title of the father. We use the occupation of the father at the birth of the respondent as mentioned on the birth certificate. When the father was not present at the notification of birth, the first occupational title of the father during the first five years of the respondent's life is used. We classify all occupations in a social class system, the Historical International Standard Classification of Occupations (HISCO; Van Leeuwen, Maas, and Miles 2002), applicable for the whole period. HISCO is compatible with the International Labor Organization's International Standard Classification of Occupations (ISCO68) scheme. The occupational categories are further classified into an abridged version of a historical social class scheme proposed by Van Leeuwen and Maas (2005), known as HISCLASS. We employ the following seven categories in our analyses: higher managers and professionals, lower managers and professionals combined with clerical and sales people, foremen and skilled workers, farmers and fishermen, lower-skilled workers, unskilled workers, farm workers, and fathers of whom the occupation was unknown.

Religion of parents. Parents' religion is ascertained by using the designation of the denomination of both of the parents at the time of the birth of the respondent. Following Van Bavel and Kok (2005), the following categories are discerned: liberal Protestants, Catholics, orthodox Protestants, mixed, and "other." *Liberal Protestants* include the majority of the moderate and liberal schools in the Reformed Church as well as a number of relatively liberal Protestant churches in the Netherlands, such as Mennonites, Lutherans, and Remonstrants. *Catholic* comprises Roman Catholics, Old Catholics, and Free Catholics. The *orthodox Protestants* includes those parents who belonged to one of the Calvinist Churches that split from the main reformed Church during the last quarter of the nineteenth century or to an orthodox school in the main Reformed Church. The "other" category is composed of parents belonging to a liberal secessionist denomination, Jewish parents, parents who did not have a religion, and parents for whom no religion was specified.

Region of birth. Region of birth represents the differences in demographic regimes in which the respondents grew up. Particularly, regional differences in nuptiality are of interest, with the northwestern and the northern part of the Netherlands having traditionally early ages at marriage, the southern part of the Netherlands having late ages at marriage, and the eastern part somewhere in between. Moreover, regions also differed with regard to the extent that coresidence with kin occurred. Only in the eastern part of the Netherlands were multigenerational households common. Thus, respondents are divided into four regions that differ demographically and with respect to patterns of coresidence according to a scheme proposed by Hofstee (1981): West and Southwest, Northwest and North, Eastern Sandy Soils, and Southern Sandy Soils and River Clay.

Degree of urbanization of birthplace. The degree of urbanization of the place of birth of the respondent is classified on the basis of the number of inhabitants and the proportion of the male occupational population working in agriculture. Communities with less than 5,000 inhabitants and with less than 20,000 residents but more than 40% working in agriculture are classified as rural. Places with a population between 5,000 and 20,000 of which less than 40% were employed in agriculture are marked as urban, as are places with more than 20,000 inhabitants. A dichotomous variable indicates whether a community was urban.

Table 2 gives an overview of the characteristics of the different cohorts.

Table 2. Percentage Per Category of the Variables Sex, Father's Occupational Group, Parents' Religious Denomination, Region, and Degree of Urbanization by Birth Cohort

Variable	1850–1859	1860–1869	1870–1879	1880–1889	1890–1899	Total
Sex (male)	51	49	50	47	48	48
Father's Occupational Group						
Higher managers and professionals	2	2	3	7	10	7
Lower managers and professionals, clerical, and sales	19	22	24	17	16	18
Skilled laborers	20	16	15	18	17	17
Farmers and fishermen	14	16	12	15	13	14
Lower-skilled laborers	8	9	6	10	10	9
Unskilled laborers	8	8	8	10	12	10
Farm laborers	27	25	30	23	21	24
Unknown	2	2	3	1	1	1
Parents' Religious Denomination						
Both liberal Protestant	63	60	57	48	45	51
Both Catholic	17	19	17	26	27	23
At least one orthodox Protestant	11	11	15	14	16	14
Mixed	5	3	3	4	4	4
Other	4	6	7	9	8	8
Region						
West and Southwest	50	50	49	47	47	48
Northwest and North	31	33	35	22	20	25
Eastern Sandy Soils	—	—	—	9	12	7
Southern Sandy Soils and River Clay	19	17	16	22	21	20
Degree of Urbanization (urban)	40	40	39	46	50	45
<i>N</i>	463	612	647	1,241	1,688	4,651

Source: HSN Release 2007.01.

RESULTS

In this article, two indicators of standardization are used. First, the average level of similarity in household trajectories is studied. Next, we measure the extent to which one specific standard trajectory emerged.

Similarity of Pathways to Adulthood

Hypothesis 1 stated that trajectories to adulthood became more similar among subsequent cohorts. If the average similarity is close to 1, standardization is said to be high; if the average similarity is close to 0, standardization is relatively low. Table 3 presents the average similarities of the household trajectories by cohort. Although the average similarity is low (just higher than 0.2), there is indeed a trend toward more similar trajectories. Among the 1850–1859 birth cohort, overall similarity is 0.188, and this increases to 0.242 for the 1890–1899 birth cohort. Table 3 also shows that this trend toward greater

Table 3. Average Similarity of Household Trajectories by Sex, Father's Occupational Group, and Parents' Religious Denomination, by Birth Cohort

Variable	1850–1859	1860–1869	1870–1879	1880–1889	1890–1899	Total
Total	0.188*	0.209	0.202	0.221	0.242*	0.218
Sex						
Men	0.198*	0.226	0.209	0.243	0.255*	0.231
Women	0.186*	0.199	0.204	0.211	0.235*	0.211
Father's Occupational Group						
Higher managers and professionals	0.244	0.226	0.327	0.233	0.288	0.252
Lower managers and professionals, clerical, and sales	0.189*	0.215	0.221	0.230	0.235*	0.218
Skilled laborers	0.229	0.202	0.198	0.227	0.247	0.220
Farmers and fishermen	0.203*	0.262	0.240	0.245	0.253*	0.238
Lower-skilled laborers	0.160*	0.206	0.274	0.249	0.214*	0.208
Unskilled laborers	0.219*	0.225	0.217	0.240	0.274*	0.239
Farm laborers	0.198*	0.221	0.190	0.209	0.247*	0.212
Unknown	0.279	0.212	0.170	0.195	0.232	0.212
Parents' Religious Denomination						
Both liberal Protestants	0.192*	0.229	0.216	0.224	0.244*	0.219
Both Catholic	0.187*	0.228	0.184	0.213	0.238*	0.214
At least one orthodox Protestant	0.226	0.203	0.223	0.217	0.253	0.223
Mixed	0.259	0.346	0.300	0.292	0.265	0.257
Other	0.118*	0.195	0.145	0.247	0.245*	0.214
<i>N</i>	463	612	647	1,241	1,688	4,651

Note: For statistically significant changes, 90% confidence intervals of the first cohort (1850–1859) and the last cohort (1890–1899) do not overlap (one-way analysis of variance, post hoc least significant difference tests).

Source: HSN Release 2007.01.

*Change significant at $p < .05$.

similarity is visible for almost all subgroups. It holds true for men and women, for almost all occupational classes, and for almost all religious denominations.

Table 3 also sheds light on Hypotheses 3–5. Our hypothesis predicting a higher level of similarity in trajectories among men than among women was confirmed; similarity was 0.231 for men and 0.211 for women. We found partial support for Hypothesis 4, which predicted a higher level of similarity among unskilled laborers than among others. Three classes—unskilled laborers, farmers and fishermen, and higher managers and professionals—stood out with a high level of similarity. Thus, although unskilled laborers showed a relatively high level of standardization of household trajectories, they were not unique in that respect. Finally, Hypothesis 5, predicting a high level of standardization of household trajectories among liberal Protestants, was not supported. Only persons from a mixed denominational background stood out with a relatively high level of standardization.

Toward a Standardized Pathway?

In this section, we test our second hypothesis that the dominance of a trajectory of early family formation increased for cohorts born between 1850 and 1900. We use a two-stage procedure to test this hypothesis. First, we empirically construct a typology of household

trajectories. Next, we examine whether the standard trajectory indeed became more dominant among subsequent birth cohorts.

By means of cluster analysis, respondents are classified into more-or-less homogeneous subgroups. We empirically generate eight clusters from the data ($R^2 = .352$). In Table 4, all eight clusters are presented. For each cluster, information is provided on the number and percentage of respondents who are classified within that cluster; on the average similarity of sequences within that particular cluster, and its standard deviation (SD); and finally, on the most characteristic sequence within that cluster. We briefly describe each of the eight clusters.

The cluster of *early death* comprises 8% of the sample and has a characteristic sequence of P/64 D/236, which stands for a trajectory in which a person lives in the parental home until the age of 20 and then subsequently dies. About 14% of all respondents experienced a trajectory of *life-cycle service*. This cluster mainly includes persons who, prior to their marriage, resided in the households of non-kin, thus including domestic servants, but also apprentices, farm hands, and boarders and lodgers. The most characteristic life-cycle service trajectory was P/54 N/58 S/14 SC/174. A person who experienced such a trajectory lived until his or her twentieth birthday in the parental home; then lived for approximately five years with an employer or other non-kin; subsequently married; after a short period (approximately one year), gave birth to a first child; and then lived until the age of 40 together with spouse and child(ren).

There are two distinct, although related, trajectories, both of which we call *early family formation*. The first trajectory (*early family formation/1*) is characterized by the sequence P/104 S/7 SC/189, which means living in the parental household until the age of about 23 or 24, followed by marriage and a short period alone with a spouse, after which the first child is born. The other pathway (*early family formation/2*) differs only in that the respondent leaves the parental household and immediately starts residing with partner *and* children. Such a move seems rather uncommon, but its frequent occurrence in the data set most likely occurred because moving away from the parental home within the same municipality was often not noticed straightaway, but only after a specific event occurred, such as the birth of a first child. In such instances, a brief spell living with a partner but without children was not registered. Therefore, both clusters were joined in subsequent analyses into a combined cluster of early family formation. About 27% of all respondents followed this pathway to adulthood.

Table 4. Household Trajectories on the Basis of the Cluster Analysis

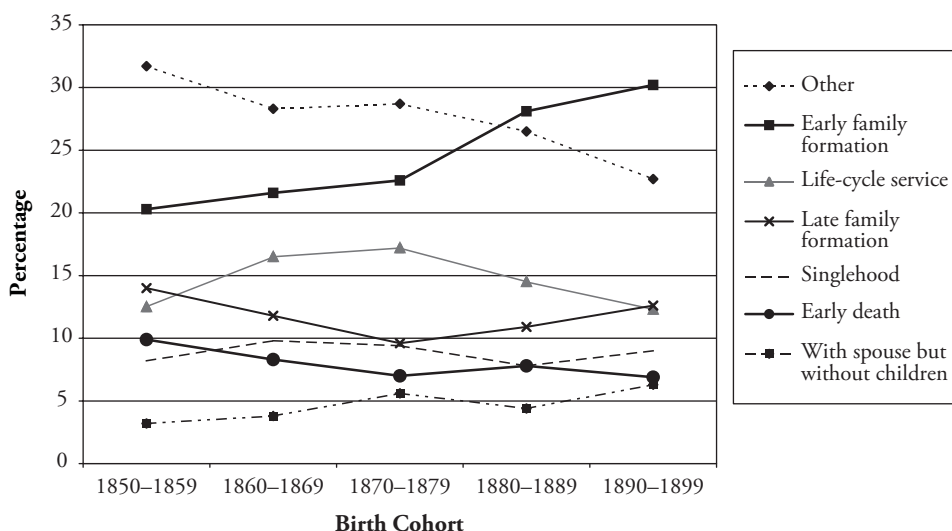
Type of Trajectory	<i>N</i>	Age	Average Similarity	SD Similarity	Characteristic Sequence ^a			
Early Death	356	7.65	0.664	0.134	P/64	D/236		
Life-Cycle Service SC/174	657	14.13	0.418	0.099	P/54	N/58	S/14	
Early Family Formation /1	718	15.44	0.769	0.111	P/104	S/7	SC/189	
Early Family Formation /2	519	11.16	0.653	0.126	P/108	SC/192		
Late Family Formation	550	11.83	0.619	0.129	P/167	S/13	SC/120	
With Spouse but Without Children	236	5.07	0.560	0.130	P/152	S/148		
Singlehood	402	8.64	0.807	0.141	P/300			
Other	1,213	26.08	0.083	0.031	P/52	N/12	P/147	SC/89

^aP = with parents; D = died; N = with non-kin; S = with spouse but without children; SC = with spouse and children (see also Table 1).

Another cluster, *late family formation*, includes persons who married relatively late—around the age of 29—and who bore children afterward. This group comprised about 12% of the total. The trajectory *childless and with partner* includes about 5% of men and women who married but bore no children before age 40. The cluster *singlehood*, 9% of our sample, consists of those persons who were still unmarried at the age of 40. Finally, there is a relatively large “other” category of more than one-quarter of all respondents, which contains nonclassifiable, widely heterogeneous trajectories. This category includes, for example, a number of respondents who with their partner and children first lived with parents (in-law) before moving to a nuclear household situation and respondents whose life courses were characterized by many short spells of living alone or with non-kin. The average similarity of this cluster is very low.

To what extent did the prevalence of the trajectory of early family formation increase as a pathway to adulthood, as we expected on the basis of our second hypothesis? Figure 1 depicts for each birth cohort the percentage of respondents who experienced the different trajectories. It shows that the trajectory of early family formation became more important across successive cohorts. Whereas one-fifth of the oldest cohort experienced this pathway to adulthood, almost one-third of the youngest cohort experienced this trajectory. The almost parallel decline of the “other” category is also a sign of standardization. The decrease of membership in this diffuse category, which most clearly diminished as of the 1870–1879 cohort, in itself implies a trend toward uniformity of pathways to adulthood. Furthermore, Figure 1 shows that the percentage of bachelors and spinsters barely declined; its share fluctuated between 8% and 10%. With regard to late family formation, we observe a U-shaped pattern. Late marriage became less common until the 1870–1879 cohort, after which it again increased in prevalence. As we expected, the servant trajectory first increased and then decreased in significance. The percentage of men and women who experienced this trajectory reached its peak (17%) among the 1870–1879 birth cohort. Thus, Figure 1

Figure 1. Percentage of Respondents Experiencing Different Pathways to Adulthood, by Birth Cohort ($N = 4,651$)



shows that the growth of the early family formation trajectory came about chiefly at the expense of the very heterogeneous trajectories in the “other” category. However, although early family formation became the most important trajectory, late family formation, singlehood, and life-cycle service remained customary alternatives. The incidence of trajectories to adulthood related to the “traditional” western European marriage pattern only decreased among the birth cohorts studied here.

Determinants of Pathways to Adulthood

To examine which social classes and religious denominations were the first to embark on the new standard trajectory of early family formation, we perform two types of multivariate analyses. First, we conduct a binomial logistic regression to provide a broad overview of which characteristics distinguish those who followed the early family formation trajectory from all others. Next, we conduct a multinomial logistic regression to focus more specifically on the characteristics that distinguish the followers of the early family formation trajectory from those in each of the other trajectories. Because the timing of events—and thus the distribution across trajectories—differs strongly between men and women, these analyses are performed separately for both genders. Results of both types of analyses are presented in Tables 5 and 6.

The results of the binomial logistic regression confirm the findings in Figure 1 that across cohorts, there is a clear increase in the likelihood of the early family formation trajectory among both women and men. The multinomial logistic regression shows that among women, the rise of the new standard trajectory occurred particularly at the expense of the life-cycle service trajectory and the “other” category. Among men, the picture is somewhat more complex. The rise of the new standard trajectory occurred at the expense of the late family formation, early death, life-cycle service, and “other” trajectories. The odds of following the new standard compared with following the childless trajectory were strongly enhanced for the 1860–1869 and 1880–1889 cohorts, but not for the other birth cohorts.

Hypothesis 4 predicted that laboring class youths more frequently experienced a standard trajectory of early family formation than youngsters with other social backgrounds. The results of the binomial logistic regression partly confirmed this hypothesis: men and women born in unskilled laboring-class families had higher odds of experiencing early family formation than did middle-class children. The same was true for farmers’ daughters and sons of farm workers. Farmers’ daughters were particularly more likely to follow the new standard rather than the life-cycle service or singlehood trajectories. Women from the unskilled labor class had an enhanced risk of following the new standard trajectory rather than singlehood. Daughters and sons of farm laborers had a relatively strong preference for the early, rather than the late, family formation trajectory. Finally, men with farming or an unskilled labor background had an elevated risk to opt for the early family formation standard rather than the childless trajectory.

Our hypothesis that youngsters from liberal Protestant background were precursors in experiencing a standard trajectory (Hypothesis 5) is only partly corroborated. Indeed, liberal Protestant youths were more often early homemakers than were Catholic youngsters. Catholic men, in particular, were more likely than liberal Protestants to experience the late family formation, early death, and life-cycle service trajectories. However, women of mixed religious background had even higher odds than liberal Protestants to follow the standard trajectory rather than any other trajectories, in particular because they had an increased likelihood to opt for early family formation at the expense of singlehood.

Finally, the results for region of birth and level of urbanization are worth noticing. Compared with persons born in rural areas, those born in urban areas had higher odds of opting for early family formation rather than for life-cycle service. Furthermore, early family formation occurred more often among those born in the (South)West of the

Table 5. Results of Binomial and Multinomial Logistic Regression Analyses of the Determinants of Trajectories to Adulthood for Women: Odds Ratios ($N = 2,401$)

Variable	Early Family Formation (Early) vs. All	Early vs. Early Death	Early vs. Life-Cycle Service	Early vs. Late Family Formation	Early vs. With Spouse but Without Children	Early vs. Singlehood	Early vs. "Other"
Birth Cohort							
1850–1859	1.14	0.65	1.54	1.14	1.64	1.47	0.98
1860–1869	0.86	0.65	0.99	0.84	0.77	0.74	0.89
1870–1879 (ref.)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1880–1889	1.31 [†]	0.90	1.31	1.55	0.89	1.53	1.39 [†]
1890–1899	1.62**	1.25	1.85**	1.33	0.82	1.54	1.92***
Father's Occupational Group							
Higher managers and professionals	0.94	1.85	0.93	0.94	0.78	0.83	0.94
Lower managers and professionals, clerical, and sales people (ref.)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Skilled laborers	1.08	1.77 [†]	1.07	0.99	0.83	1.34	0.98
Farmers and fishermen	1.52*	1.73	1.94*	0.81	1.43	2.13*	1.45 [†]
Lower-skilled laborers	0.98	0.63	1.16	1.00	0.84	1.07	1.02
Unskilled laborers	1.38 [†]	1.67	0.86	1.71	1.59	2.95**	1.36
Farm laborers	1.27	1.36	0.90	2.04*	0.81	2.85***	1.25
Unknown	0.93	0.86	0.71	1.01	1.73		0.69
Parents' Religious Denomination							
Both liberal Protestant (ref.)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Both Catholic	0.77*	0.73	0.78	0.88	1.03	0.49	0.83
At least one orthodox Protestant	1.01	0.97	1.23	1.11	0.82	0.81***	0.97
Mixed	1.63*	1.79	1.09	1.61	1.36	4.02*	1.86*
Other	1.07	2.70 [†]	1.11	1.11	0.65	1.17	0.99
Region							
West and Southwest (ref.)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Northwest and North	0.82	0.77	0.60**	0.89	0.93	0.91	0.98
Eastern Sandy Soils	0.69	0.58	0.54*	1.24	2.85	0.77	0.60*
Southern Sandy Soils and River Clay	0.64**	0.83	0.50***	0.62*	0.92	0.83	0.61**
Urban	1.21	1.48	1.54*	1.06	0.64	1.28	1.13
Constant	0.21***	2.29*	3.28**	1.06	8.83***	1.61	0.67 [†]
Nagelkerke R^2	0.03				0.10		

Source: HSN Release 2007.01.

[†] $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

Table 6. Results of Binomial and Multinomial Logistic Regression Analyses of the Determinants of the Trajectories to Adulthood for Men: Odds Ratios ($N = 2,250$)

Variable	Early Family Formation (Early) vs. All	Early vs. Early Death	Early vs. Life-Cycle Service	Early vs. Late Family Formation	Early vs. With Spouse but Without Children	Early vs. Singlehood	Early vs. "Other"
Birth Cohort							
1850–1859	0.64*	0.53 [†]	0.92	0.37***	1.33	0.69	0.65 [†]
1860–1869	1.03	0.90	0.89	0.80	2.14 [†]	1.14	1.06
1870–1879 (ref.)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1880–1889	1.41*	1.26	1.96*	0.96	2.21*	1.54	1.39 [†]
1890–1899	1.33 [†]	1.31	1.89*	0.87	1.25	1.29	1.52*
Father's Occupational Group							
Higher managers and professionals	1.38	1.54	1.40	1.32	1.71	1.09	1.49
Lower managers and professionals, clerical, and sales people (ref.)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Skilled laborers	1.14	1.07	0.99	1.11	1.85 [†]	1.24	1.06
Farmers and fishermen	0.86	1.06	1.21	0.83	1.42	0.59 [†]	0.77
Lower-skilled laborers	1.04	0.96	0.93	1.01	1.22	1.48	0.96
Unskilled laborers	1.47*	1.38	1.66	1.33	2.45*	1.32	1.38
Farm laborers	1.37 [†]	1.44	0.94	1.65*	1.96 [†]	1.46	1.24
Unknown	0.78	0.83	0.72	4.45	1.82	1.24	0.41 [†]
Parents' Religious Denomination							
Both liberal Protestant (ref.)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Both Catholic	0.70**	0.55**	0.51**	0.54***	1.01	0.77	0.87
At least one orthodox Protestant	0.96	0.56*	1.16	0.84	1.30	0.81	1.24
Mixed	1.40	1.12	1.80	1.63	0.78	1.88	1.62
Other	1.03	1.07	0.74	0.81	1.31	1.01	1.29
Region							
West and Southwest (ref.)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Northwest and North	0.62***	0.45***	0.34***	0.69*	1.24	0.98	0.60***
Eastern Sandy Soils	0.91	0.76	0.76	0.82	2.13	1.42	0.79
Southern Sandy Soils and River Clay	0.77 [†]	0.74	0.46***	1.10	1.34	0.81	0.63**
Urban	1.31 [†]	1.31	2.08**	1.26	1.10	1.77*	1.12
Constant	0.19***	2.10*	3.33**	2.91**	1.67	1.96	0.94
Nagelkerke R^2	0.05				0.12		

Source: HSN Release 2007.01.

[†] $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

Netherlands than among men and women born in the South and than among women born in the Northwest.

CONCLUSION AND DISCUSSION

The central question guiding this study was whether trajectories to adulthood of cohorts born between 1850 and 1900 became standardized. On the basis of our analyses of the HSN data, we can now answer this question. First, we expected trajectories to adulthood to become more similar across cohorts. This was corroborated by our data. This trend toward more similarity in living arrangements trajectories was observed for both genders and for almost all social classes and religious denominations. A second aspect of standardization would have been the increased dominance of a standard trajectory of early family formation. On the basis of cluster analysis, we identified six types of often-experienced trajectories: early death (between ages 15 and 40), life-cycle service, early family formation, late family formation, singlehood, and childless and with partner. Our data show that over consecutive cohorts, early family formation gradually became the most popular trajectory, although it was not yet experienced by a majority. Other pathways were, however, not yet fully superseded; the increase in relevance of early family formation happened mainly at the expense of a heterogeneous "other" category. Trajectories such as late family formation or singlehood, which were common in the preindustrial western European marriage pattern, remained widespread among cohorts born in the late nineteenth century as well.

Because employment opportunities were more diversified for women than for men, the former were expected to have more diversified trajectories than the latter. This hypothesis was corroborated. Similarity in trajectories was higher for men than for women. In addition, we expected strong social class and religious differences in the transition to adulthood. Social class and religious denomination indeed influenced the trajectories by which youngsters eventually reached adulthood. Laboring class youths, farmers' daughters, youngsters of mixed religious background, and the urban-born were the most likely to follow the trajectory of early family formation. These groups were nineteenth-century forerunners of a standard pathway to adulthood. Conversely, youngsters born in middle-class milieus and Catholic men often married late, while farmers' sons and Catholic girls most often remained unmarried. Particularly, women who were born in unskilled laboring households spent part of their young adult years in life-cycle service.

Standardization is often believed to be a consequence of institutionalization, as the schooling system, the employment system, social insurance, the welfare state, and age-graded laws increasingly regulated transitions and imposed structural constraints (Buchmann 1989; Mayer 1986). Moreover, it is also assumed that life courses were gradually disconnected from the influence of the family and the locale (Beck 1992; Kohli 1986:272). Our results show that the term *standard life course*, as life course sociologists define it, does not apply for large parts of the Dutch population born during the second half of the nineteenth century. Indeed, a trend toward a more uniform transition into adulthood took place; it became more similar for a larger part of the population, and a pathway of early family formation grew in importance, but we cannot yet speak of one clear standard trajectory. Moreover, large regional differences within Europe can be expected in the process of standardization. Because we based our analyses on data from the Netherlands, our study can be viewed as broadly representing changes in the transition to adulthood in northwestern Europe (and partly also North America). In southern Europe, where living with an employer as a servant was uncommon and children historically departed from the parental home only upon or even after marriage, trends toward standardization might have been less salient.

REFERENCES

- Abbott, A. and J. Forrest. 1986. "Optimal Matching Methods for Historical Sequences." *Journal of Interdisciplinary History* 16:471-94.

- Abbott, A. and A. Tsay. 2000. "Sequence Analysis and Optimal Matching Methods in Sociology." *Sociological Methods & Research* 29(1):3–33.
- Arosio, L. 2004. "Occupational Careers and Longitudinal Data: Tools and Perspectives of Research." *Quality & Quantity* 38:435–56.
- Aassve, A., F. Billari, and R. Piccarreta. 2007. "Strings of Adulthood: A Sequence Analysis of Young British Women's Work-Family Trajectories." *European Journal of Population* 23:369–88.
- Baizán, P., F. Michelin, and F.C. Billari. 2002. "Political Economy and Life Course Patterns: The Heterogeneity of Occupational, Family and Household Trajectories of Young Spaniards." *Demographic Research*, Vol. 6, article 8:191–240. Available online at <http://www.demographic-research.org/volumes/vol6/8/6-8.pdf>.
- Beck, U. 1992. "Individualization, Institutionalization and Standardization: Life Situations and Biographical Patterns." Pp. 127–38 in *Risk Society*. New Delhi: Sage.
- Billari, F.C. 2001. "The Analysis of Early Life Courses: Complex Descriptions of the Transition to Adulthood." *Journal of Population Research* 18:119–42.
- Bras, H. 2004. "Social Change, the Institution of Service and Youth: The Case of Service in the Lives of Rural-Born Dutch Women, 1840–1940." *Continuity and Change* 19:241–64.
- Brinkgreve, C. and A. De Regt. 1991. "Adolescentie als opgave. Ontwikkelingen in een levensfase 1750–1990" [Adolescence as issue. Developments in a life phase 1750–1990]. Pp. 15–35 in *Het is meisjes menens. Inleiding meisjesstudies*, edited by I. Van der Zanden. Amersfoort/Leuven: Acco.
- Brückner, J. and K.U. Mayer. 2005. "De-Standardization of the Life Course: What Might It Mean? And If It Means Anything, Whether It Actually Took Place." Pp. 27–53 in *The Structure of the Life Course: Standardized? Individualized? Differentiated?*, edited by R. Macmillan. Amsterdam: Elsevier.
- Brüderl, J. and S. Scherer. 2005. "Methoden zur Analyse von Sequenzdaten" [Methods of analysis of sequence data]. *Kölner Zeitschrift für Soziologie und Sozialpsychologie* 44:330–47.
- Buchmann, M. 1989. *The Script of Life in Modern Society. Entry Into Adulthood in a Changing World*. Chicago: University of Chicago Press.
- Chen, S., B. Ma, and K. Zhang. 2009. "On the Similarity Metric and the Distance Metric." *Theoretical Computer Science* 410:2365–76.
- Coale, A.J. and S.C. Watkins, eds. 1986. *The Decline of Fertility in Europe: The Revised Proceedings of a Conference on the Princeton European Fertility Project*. Princeton, NJ: Princeton University Press.
- Derosas, R. and F. Van Poppel, eds. 2006. *Religion and the Decline of Fertility in the Western World*. Dordrecht: Springer.
- Duda, R.O., P.R. Hart, and D.G. Stork. 2001. *Pattern Classification*. New York: Wiley.
- Elder, G.H. 1978. "Family History and the Life Course." Pp. 17–64 in *Transitions. The Family and the Life Course in Historical Perspective*, edited by T.K. Hareven. New York, San Francisco, London: Academic Press.
- . 1985. *Life Course Dynamics: Trajectories and Transitions, 1968–1980*. Ithaca, NY: Cornell University Press.
- Elder, G.H., M.K. Johnson, and R. Crosnoe. 2003. "The Emergence and Development of Life Course Theory." Pp. 3–19 in *Handbook of the Life Course*, edited by J.T. Mortimer and M. Shanahan. New York: Kluwer Academic/Plenum Publishers.
- Elzinga, C.H. 2003. "Sequence Similarity—A Non-Aligning Technique." *Sociological Methods & Research* 31:3–29.
- . 2005. "Combinatorial Representation of Token Sequences." *Journal of Classification* 21(1):87–118.
- . 2008. "CHESA User's Guide." Department of Social Science Research Methods, VU University Amsterdam, the Netherlands. Available online at <http://home.fsw.vu.nl/ch.elzinga>.
- Elzinga, C.H. and A.C. Liefbroer. 2007. "De-Standardization of Family-Life Trajectories of Young Adults: A Cross-National Comparison Using Sequence Analysis." *European Journal of Population* 23:225–50.

- Elzinga, C.H., S. Rahmann, and H. Wang. 2008. "Algorithms for Subsequence Combinatorics." *Theoretical Computer Science* 409:394–404.
- Engelen, T. and J. Kok. 2003. "Permanent Celibacy and Late Marriage in the Netherlands, 1890–1960." *Population* 58(1):67–96.
- Falkenburg, P. 1905. *De huwelijkskansen der vrouwen in Nederland* [The marriage chances of women in the Netherlands]. Haarlem: Bohn.
- Gabardinho, A., G. Ritschard, M. Studer, and N.S. Müller. 2008. "Mining Sequence Data in R With the TraMineR Package: A User's Guide." Department of Econometrics and Laboratory of Demography, University of Geneva, Switzerland. Available online at <http://mephisto.unige.ch/traminer>.
- Gillis, J.R. 1974. *Youth and History: Tradition and Change in European Age Relations 1770–Present*. New York/London: Academic Press.
- Hajnal, J. 1965. "European Marriage Patterns in Perspective." Pp. 101–43 in *Population in History: Essays in Historical Demography*, edited by D.V. Glass and D.E.C. Eversley. London: Arnold.
- . 1983. "Two Kinds of Preindustrial Household Formation Systems." Pp. 65–104 in *Family Forms in Historic Europe*, edited by R. Wall, J. Robin, and P. Laslett. Cambridge: Cambridge University Press.
- Hanawalt, B.A. 1992. "Historical Descriptions and Prescriptions for Adolescence." *Journal of Family History* 17:341–51.
- Hareven, T.K. 1986. "Historical Change in the Social Construction of the Life Course." *Human Development* 29:171–80.
- Hartigan, J.A. 1975. *Clustering Algorithms*. New York: Wiley.
- Hofstee, E.W. 1981. *Korte demografische geschiedenis van Nederland van 1800 tot heden* [Short demographic history of the Netherlands since 1800]. Bussum: Unieboek.
- Hogan, D.P. 1978. "The Variable Order of Events in the Life Course." *American Sociological Review* 43:573–86.
- . 1981. *Transitions and Social Change. The Early Lives of American Men*. New York: Academic Press.
- Hynes, K. and M. Clarkberg. 2005. "Women's Employment Patterns During Early Parenthood: A Group-Based Trajectory Analysis." *Journal of Marriage and Family* 2005:222–39.
- Jackson, P.B. and A. Berkowitz. 2005. "The Structure of the Life Course: Gender and Racioethnic Variation in the Occurrence and Sequencing of Role Transitions." Pp. 55–90 in *The Structure of the Life Course: Standardized? Individualized? Differentiated?*, edited by R. Macmillan. Amsterdam: Elsevier.
- Knippenberg, H. and B. De Pater. 1988. *De eenwording van Nederland. Schaalvergroting en integratie sinds 1800*. [The unification of the Netherlands. Scaling and integration since 1800]. Nijmegen: SUN.
- Kohli, M. 1986. "The World We Forgot: A Historical Review of the Life Course." Pp. 271–303 in *Later Life: The Social Psychology of Ageing*, edited by V.W. Marshall. Beverly Hills, CA: Sage.
- Macmillan, R. 2005. "The Structure of the Life Course: Classic Issues and Current Controversies." Pp. 3–24 in *The Structure of the Life Course: Standardized? Individualized? Differentiated?*, edited by R. Macmillan. Amsterdam: Elsevier.
- Mandemakers, K. 1996. *HBS en Gymnasium. Ontwikkeling, structuur, sociale achtergrond en schoolprestaties, Nederland, circa 1800–1968* [Secondary education. Development, structure, social background, and school performance, the Netherlands, circa 1800–1968]. Amsterdam: Stichting IISG Beheer.
- . 2006. "Building Life Course Data Sets From Population Registers by the Historical Sample of the Netherlands (HSN)." *History and Computing* 14(1–2):87–101.
- Marini, M.M. 1984. "The Order of Events in the Transition to Adulthood." *Sociology of Education* 57:63–84.
- Martin, P., I. Schoon, and A. Ross. 2008. "Beyond Transitions: Applying Optimal Matching Analysis to Life Course Research." *International Journal of Social Research Methodology* 11:179–99.
- Mayer, K.-U. 1986. "Structural Constraints on the Life Course." *Human Development* 29:163–70.

- . 2004. "Whose Lives? How History, Society and Institutions Define and Shape Life Courses." *Research in Human Development* 1:161–87.
- Modell, J. 1989. *Into One's Own. From Youth to Adulthood in the United States 1920–1975*. Berkeley, CA: University of California Press.
- Modell, J., F.F. Furstenberg, and T. Hershberg. 1976. "Social Change and Transitions to Adulthood in Historical Perspective." *Journal of Family History* 1:7–32.
- Mouw, T. 2005. "Sequences of Early Adult Transitions: A Look at Variability and Consequences." Pp. 256–91 in *On the Frontier of Adulthood: Theory, Research and Public Policy*, edited by R.A. Settersten, F.F. Furstenberg, and R.G. Rumbaut. Chicago: University of Chicago Press.
- Pollock, G. 2007. "Holistic Trajectories: A Study of Combined Employment, Housing and Family Careers by Using Multiple-Sequence Analysis." *Journal of the Royal Statistical Society* 170: 167–83.
- Reher, D.S. 1998. "Family Ties in Western Europe: Persistent Contrasts." *Population and Development Review* 24:203–34.
- Rindfuss, R.R., C.G. Swicegood, and R.A. Rosenfeld. 1987. "Disorder in the Life Course: How Common and Does it Matter?" *American Sociological Review* 52:785–801.
- Settersten, R.A., F.F. Furstenberg, and R.G. Rumbaut, eds. 2005. *On the Frontier of Adulthood. Theory, Research, and Public Policy*. Chicago: University of Chicago Press.
- Settersten, R.A. and K.-U. Mayer. 1997. "The Measurement of Age, Age Structuring, and the Life Course." *Annual Review of Sociology* 23:233–61.
- Stanger-Ross, J., C. Collins, and M.J. Stern. 2005. "Falling Far From the Tree. Transitions to Adulthood and the Social History of Twentieth-Century America." *Social Science History* 29:625–48.
- Stevens, D.A. 1990. "New Evidence on the Timing of Early Life Course Transitions: The United States 1900 to 1980." *Journal of Family History* 15:163–78.
- Uhlenberg, P.R. 1969. "A Study of Cohort Life Cycles: Cohorts of Native Born Massachusetts Women, 1830–1920." *Population Studies* 23:407–20.
- . 1974. "Cohort Variations in Family Life Cycle Experiences of U.S. Females." *Journal of Marriage and the Family* 36:284–92.
- Van Bavel, J. and J. Kok. 2005. "The Role of Religion in the Dutch Fertility Transition: Starting, Spacing and Stopping in the Heart of the Netherlands, 1845–1945." *Continuity and Change* 20:247–63.
- Van der Valk, L. 1986. *Van pauperzorg tot bestaanszekerheid: een onderzoek naar de ontwikkeling van de armenzorg in Nederland tegen de achtergrond van de overgang naar de algemene Bijstandswet, 1912–1965* [From pauper care until secure livelihood: A study of the development of poor relief in the Netherlands against the background of the transition to the General Social Security Law, 1912–1965]. Amsterdam: Stichting IISG Beheer.
- Van der Woud, A. 2007. *Een nieuwe wereld. Het ontstaan van het moderne Nederland* [A new world. The beginning of a modern Netherlands]. Amsterdam: Bert Bakker.
- Van Leeuwen, M.H.D. and I. Maas 2005. "A Short Note on HISCLASS." History of Work Information System. International Institute of Social History, Amsterdam, the Netherlands. Available online at <http://historyofwork.iisg.nl/docs/hisclass-brief.doc>.
- Van Leeuwen, M.H.D., I. Maas, and A. Miles 2002. *HISCO. Historical International Standard Classification of Occupations*. Leuven: Leuven University Press.
- Van Poppel, F. 1992. *Trouwen in Nederland. Een historisch-demografische studie van de 19e en vroeg-20e eeuw* [Marriage in the Netherlands. A historical-demographic study of the 19th and early 20th century]. The Hague: Stichting NIDI.
- . 1999. *De "statistieke ontleding van de dooden": een spraakzame bron?* [The "statistical dissection of the dead": A communicative source?]. Nijmegen: Nijmegen University Press.
- Van Poppel, F., M. Oris, and J. Lee, eds. 2004. *The Road to Independence: Leaving Home in Western and Eastern Societies, 16th–20th Centuries*. Bern: Peter Lang.
- Van Zanden, J.L. and A. Van Riel. 2004. *The Strictures of Inheritance: The Dutch Economy in the Nineteenth Century*. Princeton, NJ: Princeton University Press.

- Wall, R. 1989. "Leaving Home and Living Alone: An Historical Perspective." *Population Studies* 43:369–89.
- . 1995. "Historical Development of the Household in Europe." Pp 19–52 in *Household Demography and Household Modeling*, edited by E. van Imhoff, A. Kuijsten, P. Hooimeijer, and L. van Wissen. London: Plenum Press.
- Wintle, M. 2000. *An Economic and Social History of the Netherlands, 1800–1920. Demographic, Economic and Social Transition*. Cambridge: Cambridge University Press.
- Wu, L.L. 2000. "Some Comments on Sequence Analysis and Optimal Matching Methods in Sociology: Review and Prospect." *Sociological Methods & Research* 29:41–64.